

# Agriculture

*Washington State Department of Agriculture's summary of pesticide-related complaint investigations during 2004.*

## Background

The Pesticide Management Division of the Washington State Department of Agriculture (WSDA) protects human health and the environment by ensuring the safe and legal distribution, use, and disposal of pesticides in Washington State.

WSDA investigates all complaints received by the agency regarding possible pesticide misuse, storage, sales, and distribution. It also investigates complaints about applicator licensing and building structure inspections for wood destroying organisms. The agency inspects marketplaces, importers, manufacturers, and pesticide application sites for compliance with state and federal laws and regulations.

## Complaints

During 2004, WSDA investigated 200 complaints (Table 9). After investigation, it was determined that 110 (55%) involved pesticide applications and 90 (45%) were unrelated to actual applications. Examples of complaints unrelated to applications are structural inspections or licensing complaints. There were 122 violations associated with the 200 complaints. See Appendix C for a listing of all WSDA pesticide-related complaint investigations for 2004.

**Table 9. WSDA Complaints and Violations, 2000 - 2004**

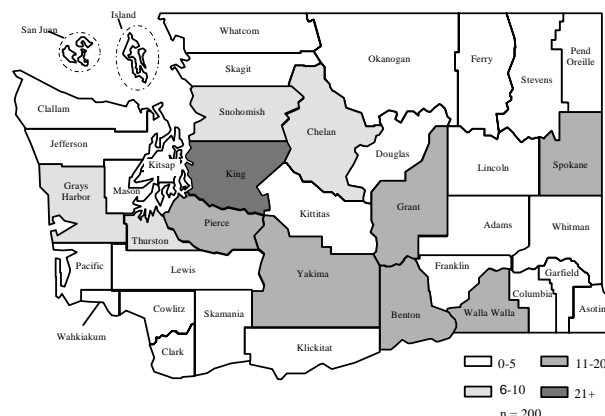
Year	Total Complaints	Violations
2000	199	121 (61%)
2001	225	152 (68%)
2002	255	169 (66%)
2003	222	151 (68%)
2004	200	122 (61%)

## Location of Complaints

There are significant differences in population, the types of pest problems, and the nature of complaints between the eastern and western portions of the state. Western Washington complaints generally concern wood destroying organism inspections, homeowner complaints about drift, intentional misuse, and complaints about unlicensed applicators. In 2004, the number of complaints investigated for Structural Pest Inspections decreased from previous years.

In 2004, 117 (58.5%) of the complaint investigations occurred in eastern Washington and 82 (41%) in western Washington. There was one out-of-state complaint. Figure 2 shows the range of complaints by county for 2004. Table 10 lists the counties with the most complaint investigations from 2000 through 2004.

**Figure 2. WSDA Complaints by County, 2004**



**Table 10. WSDA Counties with the Most Complaints, 2000 - 2004**

2000		2001		2002		2003		2004	
Yakima	26	King	21	Spokane	28	King	23	King	28
Grant	21	Grant	20	King	27	Pierce	22	Grant	20
Pierce	16	Spokane	20	Yakima	26	Grant	19	Spokane	17
Benton	14	Yakima	18	Thurston	17	Spokane	19	Benton	15
Chelan	13	Benton	13	Pierce	17	Yakima	13	Yakima	15
Spokane	11	Pierce	12	Chelan	16	Benton	12	Walla Walla	11
Clark	10	Lewis	11	Grant	16	Chelan	12	Pierce	11
Douglas	9	Thurston	10	Multiple	9	Clark	11	Snohomish	10
King	8					Multiple	10	Chelan	8

### Response Time

In 2004, WSDA responded to 79% (157/200) of complaints within one day of the incident. As required, WSDA responded to all Human Exposure complaints (22) within one day.

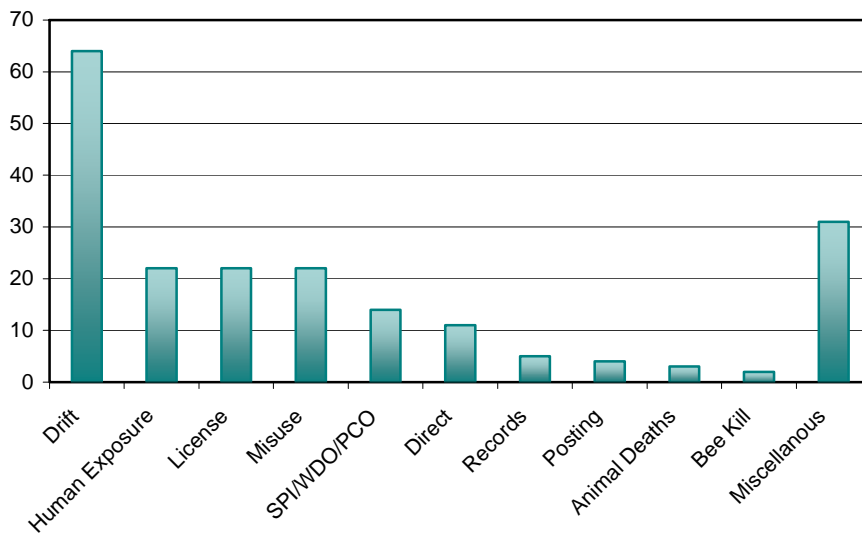
### Nature of Complaints

Complaints are categorized according to the nature of the initial complaint. Investigation may find the complaint not valid, substantiate the initial complaint, or identify additional violations. For example, an initial complaint may concern a possible drift, but investigation determines that drift did not occur but the applicator applied at the wrong rate or did not keep proper records. Although the applicator would not be cited for drift, he or she could be cited for being "faulty,

careless, and negligent” or for record keeping violations. When complaints are associated with numerous possible violations, the case is categorized by the most serious complaint. For example, a complaint involving human exposure caused by drift from application by an unlicensed applicator would be categorized as human exposure even if the only final outcome of the case was a Notice of Correction for record keeping. However, in general, the initial complaint is a fairly reliable indicator of the final outcome of the case and reflects the concerns of the complainant.

In 2004, WSDA received 64 general complaints about possible pesticide drift to property, water, or crops and 22 complaints specifically about human exposure to pesticides, some of which were due to drift (Figure 3). There were 38 complaints about drift to property or vehicles and 23 crop-related drift complaints. Pesticides moving off-target appears to be one of the major reasons to register a complaint with WSDA. Complaints about misuse of pesticides increased in 2004. Generally, these complaints concerned damage to ornamentals from commercial applications or from a neighbor's application. Most of these complaints were not substantiated as the damage was due to drought, insects, or frost. WSDA receives numerous complaints about non-licensed individuals and faulty structural inspections. The WSDA received 22 complaints about improper or no licensing, 11 complaints about direct misapplications, and 14 complaints specific to Wood Destroying Organism (WDO) and Structural Pest Inspections (SPI) (in addition to WDO/SPI complaints about improper licenses or records). Two bee kills were reported for 2004.

**Figure 3. WSDA Nature of Initial Complaints, 2004**



## **Drift and Human Exposures**

Of the 22 complaints about possible human exposure to pesticides, 13 were due to drift, 3 complaints involved a direct contact with the pesticide (generally through soil) and 6 complaints were about odor or vapor. Analyses were done to determine if the complaints about human exposure or drift were valid, regardless of whether they were the cause of a regulatory action. These analyses determined that:

- 42 of the 64 general drift complaints had residue detected off target
- 3 of the 22 human exposure complaints were direct exposure
- 11 of the 22 human exposure complaints were not related to any pesticide exposure
- 7 of the 22 human exposure complaints were due to drift and had residue detected off target
- 1 human exposure complaint was referred

In 2004, WSDA conducted an initial investigation of one complaint from a farm worker alleging pesticide exposure from residue. WSDA referred this case to L&I. L&I is the lead agency to investigate employee agricultural pesticide exposures alleged to be from their employment.

The alleged human exposures investigated by WSDA were primarily reported from neighbors or individuals who were in agricultural areas but not doing agricultural labor. These persons reported either drift or direct contact with pesticides.

## **Application Methods**

In 2004, WSDA received 15 complaints about aerial applications, 1 chemigation complaint, 1 complaint about misuse of a fogger, 2 fumigation complaints, 94 complaints about ground applications, 70 complaints about items other than an application, and 17 complaints where the application method was undetermined or unknown.

## **Violations**

Complaint investigations may result in the determination that a violation of state or federal laws or rules has occurred. During 2004, about 60% of WSDA complaint investigations resulted in some type of violation. Most violations are not severe in nature (see Table 14 on page 32) and most violators are issued a warning or correction notice rather than issued fines or license suspensions.

## **Type of Activity in Complaints with Violations**

Complaints are classified by WSDA according to the following type of activities:

- Agricultural: Incidents occurring in an agricultural environment such as farming, forestry, greenhouses, or Christmas tree farming

- Commercial/industrial: Incidents by licensed operators making applications to offices, restaurants, homes, and landscapes
- Pest Control Operator (PCO): Incidents involving a subset of commercial/ industrial operators licensed to make applications to control structural pests
- Wood Destroying Organism (WDO): Incidents involving inspections on structures for fungi, insects, and conditions that lead to pests. No pesticide applications are made
- Structural Pest Inspections (SPI): A change in law established a separate definition for a license for this work. Replaces the previous WDO incident count. No pesticide applications are made
- Residential: Includes any application of a pesticide in a residential environment by the homeowner, resident, or neighbor
- Right-of-ways: Applications made on public land such as roadways, electric lines, and irrigation canal banks
- Other: The WSDA code for undefined use and includes licensing, storage, registration, records, and similar activities

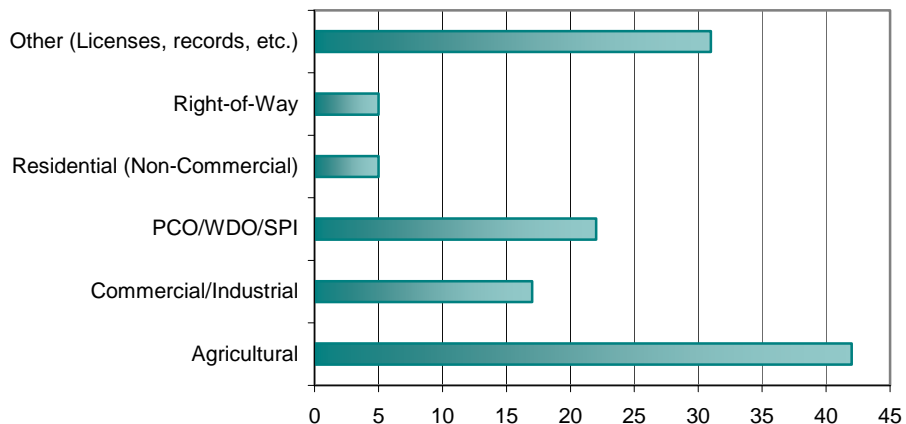
Table 11 shows the complaints with violations by type of activity from 2000 through 2004.

**Table 11. WSDA Violations by Type of Activity, 2000 - 2004**

Activity	2000	2001	2002	2003	2004
Agricultural	48	63	69	39	42
Commercial/Industrial	33	27	31	38	17
Pest Control Operator/ Wood Destroying Organism	14	28	16	33	22
Residential (non commercial)	11	11	13	7	5
Right-of-Way	8	8	3	5	5
Other (licenses, records, etc.)	7	15	37	29	31
<b>Total Violations</b>	<b>121</b>	<b>152</b>	<b>169</b>	<b>151</b>	<b>122</b>

Figure 4 identifies the violations by type of activity for 2004.

**Figure 4. WSDA Violations by Type of Activity, 2004**



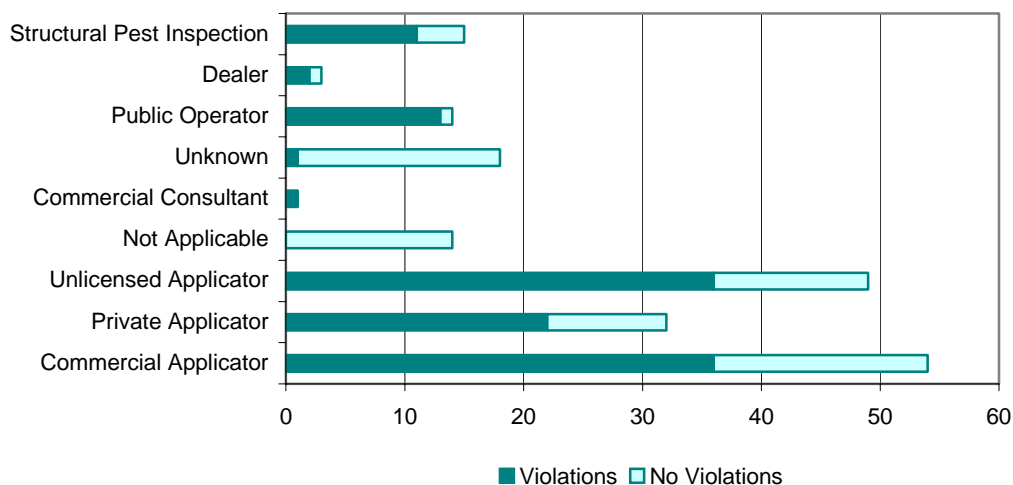
Violations alone do not give an accurate picture of pesticide exposures. For example, there can be instances where drift has occurred and no action can be taken, as the violator could not be proven. Sometimes the applicator has moved away, often out of state, and cannot be located. However, in general, violations give a good representative picture of the validity and severity of pesticides incidents.

#### **Type of License in Complaints with Violations**

In 2004, WSDA licensed approximately 5,100 commercial applicators and operators and over 12,000 private applicators. Although WSDA licenses fewer commercial than private applicators, commercial applicators make many more applications per licensee and more applications on land not owned by the applicator. This increases the probability of complaints for commercial applicators. See Appendix D for information about WSDA license types.

In 2004, commercial applicators were involved in 54 complaints with 36 violations. Private applicators were involved in 31 complaints with 22 violations. Unlicensed applicators were involved in 49 complaints with 36 violations. Unlicensed applicators were primarily unlicensed people conducting structural pest inspections that should have been licensed (Figure 5).

**Figure 5. WSDA Type of Licensee Involved in Cases With and Without Violations, 2004**



## Agricultural Complaints

In agriculture, most of the complaints with violations involve pesticides applied to orchards. This is not unexpected, as orchards tend to be located in more populous areas, and may be on smaller acreages intermixed with other crops, housing, and heavily traveled roads. The most frequent complaints involved applications to apples, followed by applications to cherries and pears. The most frequent agricultural complaints in 2004 for a single crop were from applications to potatoes. Most of the complaints were about possible human exposure, followed closely by drift or direct exposure to vehicles (Table 12).

Table 12 summarizes the most frequent target and complaint sites for investigations in which citations were issued for agricultural violations for 2004.

**Table 12. WSDA Agricultural Violations, 2004**

Most Frequent Target Site*		Most Frequent Complaint Site**	
Potatoes	6	Person	8
Wheat	5	Car	5
Apples	5	Trees	4
Cherries	4	Potatoes	3
Pears	4	Bees	3
		Alfalfa	2
		Property	2
		Pears (including organic)	2

\* Target site is the intended target for the pesticide.

\*\* Complaint site is where the pesticide landed or the type of complaint filed.

## Non-Agricultural Complaints

In 2004, the most frequent non-agricultural complaint concerned structural pest inspections. Generally, these complaints occur because inspectors fail to notice or report signs of infestation or wood rot rather than diagnosing problems that do not exist. The most frequent type of violation cited by WSDA was failure to keep accurate or adequate records (did not record conditions conducive to rot or the presence of insects) and failure to obtain the proper license type for the application being done.

The most common complaint about non-agricultural applications was from drift or direct applications to control weeds from an unlicensed applicator, usually a neighbor. The second most common complaint concerned misuse of products to control insects. Complaints about drift from commercial lawn care applications were significantly reduced from previous years.

Table 13 summarizes the most frequent target and complaint sites for investigations in which citations were issued for non-agricultural violations for 2004.

**Table 13. WSDA Non-Agricultural Violations, 2004**

Most Frequent Target Site*		Most Frequent Complaint Site**	
Weeds	8	Structural Pest Inspection	22
Insects	6	License	17
Property	3	Records	4
Right of Way	3	Backflow Device	3
Lawns	3		

\* Target site is the intended target for the pesticide.

\*\* Complaint site is where the pesticide landed or the type of complaint filed.

The distribution of complaints has been consistent over the years and points to the need for greater education of applicators, particularly in drift reduction techniques. Some violations may reflect the transient nature of employment or lack of applicator training and some, particularly for structural pest inspections, may reflect willful fraud. The number of preventable violations points to the continuing need for a strong agency enforcement program. However, given that the estimated number of applications is in the hundreds of thousands, there are few serious offenses directed to the department.

Applicators must comply with all precautions and directions on the pesticide label. The following case illustrates problems that can occur when an applicator becomes careless.



*A dog went into seizures and required veterinary care when it ingested a granular insecticide. A commercial applicator had used Talstar, a granular product containing bifenthrin to control beetles around a home. The dog's owner called WSDA and the investigator found granules of Talstar clumped around the site in a garden with strawberries, cucumbers and peppers, and in the dog's water dish, a wagon, and pottery dish. Water and dog vomit samples were positive for bifenthrin. The label requires: 1) application only with equipment that disperses the pellets in a uniform manner, 2) does not allow for the product to be used in a food garden, and 3) requires that pets and people be kept from the area after application. The applicator had applied the product carelessly using an empty pop can, had applied in the garden, and did not warn the dog's owner about contact. He was issued a Notice of Intent corrective action and fined for applying in a faulty, careless, and negligent manner.*

## Children

In 2004, children were involved directly or indirectly in 5 cases. DOH also investigated 4 of the cases. Two cases involved alleged illnesses that were probably from odor. No residues were identified on or near the children. One case involved a possible residue transferred by a parent from a wet railing to the child. No symptoms were observed in the child. One case concerned a possible Sudden Infant Death that occurred in 2003. The child died the day after the apartment was treated with an insect fogger. DOH asked WSDA to determine if the label had been followed and all precautions taken for ventilation after the use of the fogger. As the case occurred in 2003, WSDA could only review the records. No violations were noted and the official cause of death was listed as Sudden Infant Death. This case was described in detail in the DOH and WPC Sections of the *2004 Annual PIRT Report*. The fifth case, where DOH was not notified, was a complaint that notification had not been provided at a child care facility when a pesticide was used. The case concerned emergency use of a wasp spray. WSDA discussed the need for posting with the applicator.

## Severity of Reported Complaints

The WSDA rates the severity of cases from 0 to 6 after completing the complaint investigation. See Table 14 for a detailed description of each rating. As in previous years, the majority of complaints were assigned a severity rating of 2 or less.

Five of the 8 cases with a severity rating of 4 were from herbicide drift to a susceptible or organic crop with large financial losses. Two of the applications were made to potatoes, 1 to peas, 1 to hay and 1 to control weeds in a right-of-way. One case was drift from an insecticide application to potatoes. The other 2 cases were injury from direct applications, 1 from an application to control weeds in a wetland, and the other for insect control that resulted in an animal illness.

**Table 14. Severity Rating of WSDA Complaint Cases, 2000 - 2004**

Rating	2000	2001	2002	2003	2004	Criteria
0	20 10%	23 10%	30 12%	22 10%	26 14.5%	Problem not due to pesticides and/or no cause determined; PCO/WDO inspection with no violations.
1	40 20%	71 31.5%	76 30%	51 23%	65 32.5%	Pesticides involved, no residue, no symptoms occurred; possible pesticide problem, not substantiated; issues involving records, registration, posting, notification (multiple chemical sensitivity) or licensing; DOH classified "unlikely" or "insufficient information".
2	89 45%	72 32%	114 45%	112 50%	83 41.5%	Residue found, no health symptoms (human, animal); health symptoms not verified; multiple minor violations; off label use; worker protection violations; PPE violations with no health symptoms; plants with temporary or superficial damage only; PCO/WDO faulty inspections; DOH classified "possible".
3	31 16%	35 15.5%	31 12%	22 10%	18 9%	Minor short-term health symptoms (rash, eye irritation, shortness of breath, dizzy, nausea, vomiting); bee kills less than 25 hives; minor fish kills; economic plant damage under \$1000; evidence of deliberate economic fraud; DOH classified "probable".
4	17 9%	20 9%	3 1%	13 6%	8 4%	Short-term veterinary or hospital care; bee kills over 25 hives; significant fish kills; significant economic plant damage (over \$1000); environmental damage; illness involving children; DOH classified "probable" .
5	2 1%	4 2%	1 0.4%	2 1%	0	Veterinary or hospital care overnight or longer; physician diagnosed children's illness as caused by pesticides; animal death due to pesticides; significant environmental damage; DOH classified "definite".
6	0	0	0	0	0	Human death due to pesticides.
<b>Total</b>	<b>199</b>	<b>225</b>	<b>255</b>	<b>222</b>	<b>200</b>	

The following case example illustrates an agricultural violation with a severity rating of 4.

*An aerial application of Monitor (methamidophos) and Comite (propagate) to potatoes drifted on alfalfa being grown for seed. Leaf cutter bees had been placed in the alfalfa field to provide for pollination. A temperature inversion was present at the time of application. Both the potato field and the alfalfa field slope down towards a common drainage ditch. There was a very slight breeze from the potato field towards the alfalfa field. Both the Monitor and the Comite labels have warnings against application when the wind favors off-target movement. In addition, the Monitor label states "Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area." Monitor is highly toxic to bees. The alfalfa grower incurred loss of nearly \$500,000 in lost seed production and over \$10,000 for the loss of bees. The applicator was issued a Notice of Intent and fined.*

## Type of Pesticide Involved

In 2004, herbicides were involved in 67 complaints and insecticides in 39 complaints. There were relatively fewer complaints about other pesticides such as fumigants (7), fungicides (3) and rodenticides (1). This may be because detrimental effects from herbicide and insecticide misuse are more obvious and because they are generally applied at a higher frequency, with more power equipment, and over larger areas.

Overall, complaints about applications in 2004 show a greater diversity of pesticides than in previous years. There were 2 complaints about azinphos-methyl drift and 2 complaints about endosulfan drift. The complaints on these products continue to decrease. Herbicide drift continues to constitute the greatest number of complaints. Fumigant complaints seem to be increasing in number although the complaints are usually only about odor rather than illness.

In 2004, 2 herbicides, glyphosate (19 complaints) and 2,4-D (14 complaints), were the most frequently reported active ingredients (Table 15). This is consistent with previous years' numbers and probably reflects the frequency of use, use by unlicensed (untrained) applicators and the high visibility of misuse. Many complaints involved tank mixes of several products.

Complaints reported to WSDA should be regarded as indicators of potential problem areas and are not a definitive summary of all misapplications. For example, drift involving products such as sulfur and kaolin (clay) may occur more often than is reported. Such products are readily identifiable and people tend to be less worried about unknown effects from these products. These products also have minimal health effects and minimal detrimental effects on non-target plants and property.

**Table 15. Active Ingredients Most Commonly Involved in Complaints, 2004**

Active Ingredient	
Glyphosate	19
2,4-D	14
Chlorpyrifos	5
Dicamba	5
Metam-Sodium	4
Kaolin	3
MCPA	3
Oil	3
Permethrin	3
Sulfosulfuron	3

## Enforcement Actions

Complaint investigations may result in the determination that a violation of state or federal laws or rules has occurred. Generally, first offenders or minor infractions are given a Notice of Correction and a period of time to come into compliance. For more serious infractions, WSDA follows the penalty matrix for any legal actions as specified in WAC 16-228-1130.

Sometimes more than one corrective action is taken on a case. In this report, only one corrective action per category is identified. For example, if more than one Notice of Correction was issued, the action would be listed as one Notice of Correction. However, if more than one type of corrective action was taken, such as a Notice of Correction and a Notice of Intent, as could happen if several applicators were involved in the same investigation, both types are listed.

**Table 16. WSDA Agency Actions, 2000 - 2004**

	2000	2001	2002	2003	2004
No action indicated	78	74	84	71	76
Verbal warning	1	3	6	3	1
Advisory letter/Warning letter	4	4	8	8	4
Notice of correction	96	111	127	116	98
Notice of intent/Administrative action	17	37	31	26	20
Referred	2	2	2	0	2
Stop sale	1				
<b>Total actions</b>	<b>199</b>	<b>231</b>	<b>258</b>	<b>224</b>	<b>201</b>

In 2004, the following corrective actions were taken: No Action Indicated (76), Verbal Warning (1), Advisory or warning letter (4), Notice of Correction (98), Notice of Intent (Fines, License Suspension) (20), and Referred (2) (Table 16). One case had more than one type of action (several applicators involved). See Appendix D for Enforcement Action definitions.

### Other Agencies Involved

The WSDA works in cooperation with other state and local agencies in their particular area of responsibility and expertise. Agencies cooperate in the collection of evidence and testimony. Cooperating agencies may independently report their involvement in these cases or they may do no further independent investigation.

In 2004, WSDA consulted with other state, federal and local agencies, including the police, in 45 investigations. The Departments of Health and Ecology and EPA were the most frequently consulted. One case was referred to the Yakama Nation and one case to L&I.

### WSDA Prevention Activities 2004 and 2005

A one-time appropriation of \$200,000 from the L&I accident fund was approved in the 2004-2005 legislative session to enhance WSDA's farm worker education program. An advisory committee recommended that WSDA continue current efforts and expand efforts especially in hands-on education in the field. WSDA will use the funds to add staff, assist Washington State University with training and purchase equipment.

WSDA filed a CR 102 in 2005 for a notification process when Danger/Poison pesticides are applied by air, airblast equipment, over head chemigation or fumigation outside structures, near schools hospitals, nursing homes, and adult and child day care centers. Public hearings were held in November 2005 in Wenatchee, Yakima, and Olympia.

In addition to investigations of possible pesticide misuse, WSDA inspects marketplaces, importers, manufacturers, and other businesses using pesticides for compliance with state and federal laws and regulations; licenses pesticide applicators and conducts training on the WPS; administers a waste pesticide collection program; and addresses groundwater issues that involve pesticides. Details of these activities for 2004 are listed below:

#### Compliance

- Conducted 18 marketplace inspections to check for cancelled, suspended, and unregistered products; child-resistant packaging; etc.
- Conducted 84 agricultural use inspections to evaluate compliance with pesticide product labels, the WPS, equipment, licensing, etc.

- Conducted 16 dealer inspections to check for misbranded, cancelled, and restricted use sales of pesticide products, and to check for dealer licensing.
- Conducted 6 inspections at establishments that produce pesticides to check for labeling, disposal, record reporting and containment.
- Conducted numerous presentations at meetings held by growers, schools, labor groups and other organizations to discuss pesticide compliance and preventing incidents.

### **Registration Services**

- Conducted environmental toxicology reviews of Special Local Need registrations, Section 18 emergency exemptions and experimental use permits for numerous active ingredients (e.g., diazinon, diflubenzuron, disulfoton, endosulfan, glyphosate, lambda-cyhalothrin, PCNB, phorate, propargite, propiconazole, triazamate, zeta-cypermethrin).
- Provided information to the Yakama Nation on special local need registrations issued by WSDA and Section 18 emergency exemptions requested by WSDA.
- Provided comments to the EPA regarding proposed revisions to the emergency exemption process.
- Participated in educational workshops regarding West Nile virus and compliance with state rules and regulations and proper application techniques. Prepared a publication on biopesticides registered for mosquito larvae control.
- Worked with the EPA and registrants to develop label statements for several active ingredients (e.g. novaluron, mesosulfuron, zinc phosphide) that will reduce the potential for adverse impacts on non-target organisms (e.g. bees, mammals, plants).
- Provided information to beekeepers on the legal use of pesticides to control mites in honey bee colonies.
- Developed recommendations to add 5 spray adjuvants that are slightly toxic or practically non-toxic to freshwater fish and aquatic invertebrates to Ecology's NPDES permit for aquatic noxious weed control.
- Provided comments to Ecology regarding spray adjuvant use in conjunction with *Bacillus thuringiensis kurstaki* (Btk) insecticides for control of gypsy moth.
- Conducted surface water pesticide monitoring activities in eastern and western Washington watersheds. The data was made available to EPA and National Oceanic and Atmospheric Administration Fisheries for their endangered species assessments.

- Provided EPA with crop and pesticide use information for their endangered species assessments.

#### **Licensing and Farm worker Protection**

- Developed and mailed the annual pesticide newsletter, *Pesticide Notes*, to all licensed applicators. The newsletter has information on preventing pesticide violations, new pesticide regulations and current pesticide problems. The July 2004 *Pesticide Notes* highlighted pesticide safety, emphasizing avoiding exposure to farmworkers and children.
- Continued hands-on Train-the-Trainer Spanish language pesticide worker safety programs.
- Continued outreach to Spanish speaking farmworkers on pesticide safety through radio programs, newsletters, training classes and presentations.
- Developed Spanish language training manuals and applicator exams.

#### **Waste Pesticide Disposal**

- Collected and disposed of 153,723 pounds of waste pesticide in 2004. Over the program's history, this is an average of 323 pounds per customer. Twenty-eight events were held.
- Identified contents of unknown containers suspected to be pesticides and disposed of them or recommended other disposal options.
- Worked on issues around pesticide container recycling.

#### **Groundwater Protection**

- Finished mapping project of groundwater depth (where known), soil types, and land use.
- Developed model for pesticide aquifer vulnerability map for Washington State. Started verification work.
- Participated in educational meetings on protecting groundwater from pesticides.

